

CYPRESS SEMICONDUCTOR

CYPRESS SEMICONDUCTOR INVENTION DISCLOSURE FORM

## 1. INVENTOR(S)

DISCLOSURE NO. CD00060

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Citizenship Korea Dept #            Home Phone No.             
Home Mailing Address

2. TITLE OF INVENTION Method and Apparatus for Overclocking Recovery in a PLL

## 3. CONCEPTION OF INVENTION

- A. Date of first drawing or drawings             
Where can first drawing be found
- B. Date of first written description             
Where is description found

Inventor(s)            Date           Inventor(s)            Date           Inventor(s)            Date           Witnessed, Read, and Understood by:            Date           Witnessed, Read, and Understood by:            Date           

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C. Date of first oral disclosure to others \_\_\_\_\_

To whom? \_\_\_\_\_

## 4. CONSTRUCTION OF DEVICE

- A. Date Completed \_\_\_\_\_ not completed yet – being simulated (to be completed \_\_\_\_\_)
- B. Was prototype made? \_\_\_\_\_
- C. By whom made? \_\_\_\_\_
- D. Where can the prototype be found? \_\_\_\_\_

## 5. TEST OF DEVICE

- A. Date: \_\_\_\_\_ Witness(es): \_\_\_\_\_
- B. Results: \_\_\_\_\_

## 6. SALE

- A. Was invention sold or offered for sale? Yes \_\_\_ No X \_\_\_
- B. Was invention used to make, assemble or test a commercial product? Yes \_\_\_ No X \_\_\_
- C. Will invention be sold, offered for sale, sampled, or used to make, assemble or test a commercial product? Yes X \_\_\_ No \_\_\_
- D. Actual or estimated date of first sale, offer or commercial use \_\_\_\_\_
- E. Is invention part of a product for which there is a data sheet? Yes X \_\_\_ No \_\_\_ (If yes, attach a copy) (datasheet still in construction)
- F. Actual or estimated date of publication, release or availability of data sheet \_\_\_\_\_

## 7. USE

- A. Is invention presently being used? Yes \_\_\_ No X \_\_\_
- B. Are there specific plans for its use in near future? In what products or processes?

## 8. RELATED PRINTED PUBLICATIONS, PATENTS, PATENT APPLICATIONS

9. WAS INVENTION Conceived (Yes \_\_\_ (No X \_\_\_ Constructed (Yes \_\_\_ (No X \_\_\_ Tested (Yes \_\_\_ (No X \_\_\_ during performance of Government Contract?

Contract Number \_\_\_\_\_

Inventor(s) \_\_\_\_\_ Date \_\_\_\_\_

Inventor(s) \_\_\_\_\_ Date \_\_\_\_\_

Inventor(s) \_\_\_\_\_ Date \_\_\_\_\_

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(Give Full Contract Number)

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The description of invention should be written in the inventor's own words and generally should follow the outline given below. Sketches, prints, photos, and other illustrations, as well as memos or reports of any nature in which the invention is referred to, if available, should form a part of this disclosure and reference can be made thereto in the descriptions of the invention's construction and operation.

Inventor(s) \_\_\_\_\_ Date \_\_\_\_\_

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FOR ANSWERS TO THE FOLLOWING QUESTIONS, USE THE REMAINDER OF SHEET AND THE ATTACHED SHEET(S).

1. General purpose of invention. State in general terms the objects of the invention.
2. Describe old technology, if any, for performing the function of the invention. Provide references, if available.
3. Indicate the disadvantages of the old technology.
4. Describe your invention and its construction, showing the changes, additions and improvements over the old method.
5. Give details of its operation (i.e., how is your invention used?), if not already described under 4.
6. State the advantages of your invention over what has been done before.
7. Indicate any alternate component(s) and/or method(s) of construction.
8. If a joint invention, indicate what contribution was made by each inventor.
9. Describe the features that are believed to be new.
10. State opinion of relative value of invention.
11. After the disclosure is prepared, it should be signed by the inventor(s) and then read and signed by two witnesses in the space provided at the bottom of each sheet.

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1. General purpose: The purpose of the invention is to provide for a recovery from a system hang due to over-clocking.
2. Old technology: Many system (e.g. motherboard) manufacturers use Cypress programmable clock chips to over-clock their systems. Sometimes the over-clocking causes the microprocessor and/or the system to hang. The system may hang if the clock speed is set too high. The microprocessor may hang if there is an abrupt change in clock frequency, causing a glitch. To provide for a recovery mechanism, some motherboard manufacturers have incorporated a watchdog timer or RC delay circuitry on the motherboard itself.

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3. Invention/Operation/Advantages: The invention is an on-board watchdog timer and reset generation circuitry to provide for a recovery mechanism when the system or microprocessor hangs. The BIOS program requests a clock frequency change via the IIC interface on the clock chip. When the new frequency is loaded in to the IIC interface, the clock chip generates a reset output signal. This reset signal may be used by the system manufacturer to reset components that require a reset once the frequency is changed. The watchdog timer is also started when the new frequency is loaded in to the IIC interface.

The watchdog timer counts to a certain value (the value may be user-programmable through the IIC interface) and if the system has not come back when the timer reaches its maximum count, another reset output signal is generated. This reset signal may be used to reset the entire system.

The clock circuit also includes a mechanism to allow the frequency to drop down to a recovery frequency when the watchdog timer times out. This recovery frequency is programmable through the IIC interface.

4. Value of Invention: This invention is believed to be valuable because it is included in the [REDACTED] product.

Inventor(s) \_\_\_\_\_ Date \_\_\_\_\_

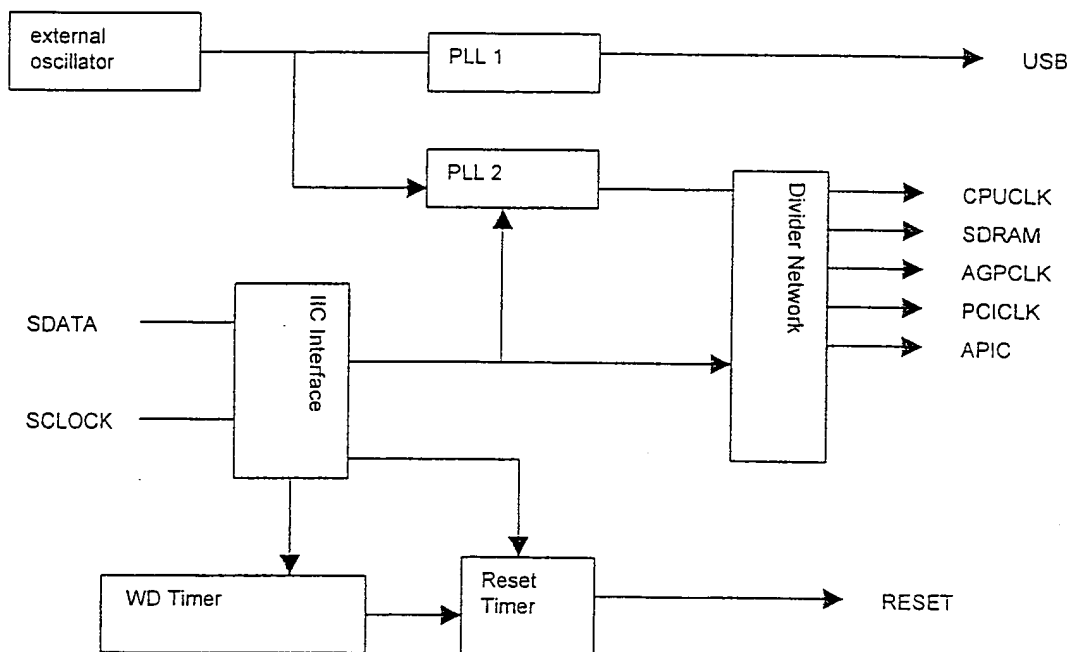
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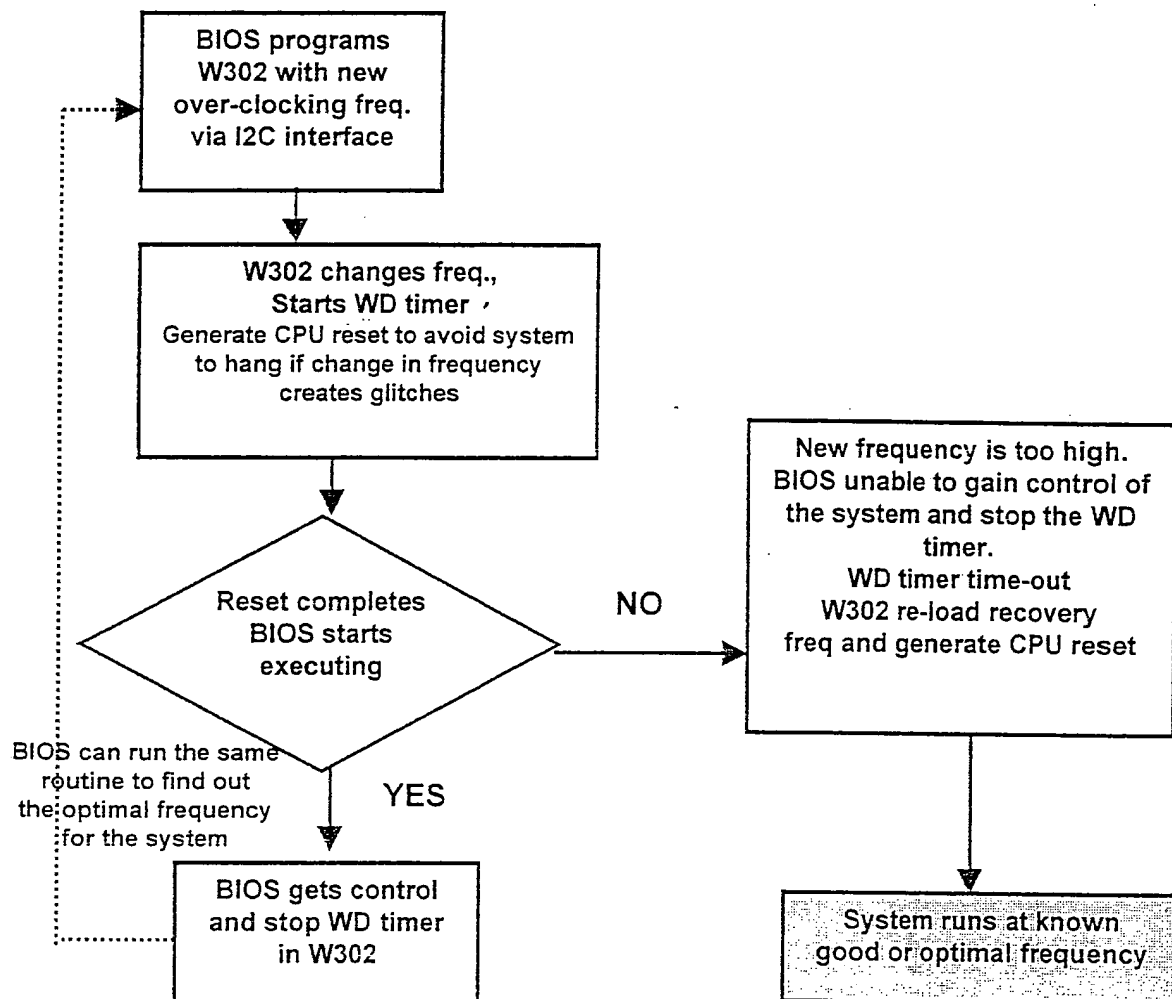
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